



SEQUENCE LISTING

<110> Stashenko, Philip
Okamatsu, Yoshimura
Sasaki, Hajime
Battaglino, Richard
Spaete, Ulrike

<120> Expressed Genes that Define the Osteoclast Phenotype

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Cys Glu Gln Ser Arg His Leu Asp Leu Ala Val Gln Val Thr Glu Val
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Ile Ala Tyr Thr His Cys Cys Val Asn Pro Val Ile Tyr Ala Phe Val
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Leu Lys Asn Met Thr Ser Ile Tyr Leu Leu Asn Leu Ala Ile Ser Asp
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Leu Leu Phe Leu Phe Thr Leu Pro Phe Trp Ile Asp Tyr Lys Leu Lys
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Asp Asp Trp Val Phe Gly Asp Ala Met Cys Lys Ile Leu Ser Gly Phe
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Tyr Tyr Thr Gly Leu Tyr Ser Glu Ile Phe Phe Ile Ile Leu Leu Thr
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130 135 140

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Ala Ile Leu Ala Ser Met Pro Gly Leu Tyr Phe Ser Lys Thr Gln Trp
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Cys Glu Gln Ser Arg His Leu Asp Leu Ala Val Gln Val Thr Glu Val
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Ile Ala Tyr Thr His Cys Cys Val Asn Pro Val Ile Tyr Ala Phe Val
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gcgggtgtgg	tttgcaacc	agagacagaa	gcagaagcgg	atgaaattct	ctgccactta	2100
ctgaggaggg	tgtgagacgc	cgggtggggc	acactggga	gctgaggggt	gcgtttctgg	2160

<210> 31
 <211> 421
 <212> PRT
 <213> Mus sp.

<400> 31

Met	Met	Ser	Met	Asn	Ser	Lys	Gln	Pro	His	Phe	Ala	Met	His	Pro	Thr
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Leu	Pro	Glu	His	Lys	Tyr	Pro	Ser	Leu	His	Ser	Ser	Ser	Glu	Ala	Ile
20															

Arg Arg Ala Cys Leu Pro Thr Pro Pro Leu Gln Ser Asn Leu Phe Ala
35 40 45

Ser Leu Asp Glu Thr Leu Leu Ala Arg Ala Glu Ala Leu Ala Ala Val
50 55 60

Asp Ile Ala Val Ser Gln Gly Lys Ser His Pro Phe Lys Pro Asp Ala
65 70 75 80

Thr Tyr His Thr Met Asn Ser Val Pro Cys Thr Ser Thr Ser Thr Val
85 90 95

Pro Leu Ala His His His His His His His Gln Ala Leu Glu
100 105 110

Pro Gly Asp Leu Leu Asp His Ile Ser Ser Pro Ser Leu Ala Leu Met
115 120 125

Ala Gly Ala Gly Gly Ala Gly Ala Ala Gly Gly Gly Gly Ala His
130 135 140

Asp Gly Pro Gly Gly Gly Gly Pro Gly Gly Gly Gly Pro Gly
145 150 155 160

Gly Gly Gly Pro Gly Gly Gly Gly Gly Gly Pro Gly Gly Gly
165 170 175

Gly Gly Ala Pro Gly Gly Leu Leu Gly Gly Ser Ala His Pro His
180 185 190

Pro His Met His Gly Leu Gly His Leu Ser His Pro Ala Ala Ala
195 200 205

Ala Met Asn Met Pro Ser Gly Leu Pro His Pro Gly Leu Val Ala Ala
210 215 220

Ala Ala His His Gly Ala Ala Ala Ala Ala Ala Ala Ala Ala Gly
225 230 235 240

Gln Val Ala Ala Ala Ser Ala Ala Ala Val Val Gly Ala Ala Gly
245 250 255

Leu Ala Ser Ile Cys Asp Ser Asp Thr Asp Pro Arg Glu Leu Glu Ala
260 265 270

Phe Ala Glu Arg Phe Lys Gln Arg Arg Ile Lys Leu Gly Val Thr Gln
275 280 285

Ala Asp Val Gly Ser Ala Leu Ala Asn Leu Lys Ile Pro Gly Val Gly
290 295 300

Ser Leu Ser Gln Ser Thr Ile Cys Arg Phe Glu Ser Leu Thr Leu Ser
305 310 315 320

His Asn Asn Met Ile Ala Leu Lys Pro Ile Leu Gln Ala Trp Leu Glu
325 330 335

Glu Ala Glu Gly Ala Gln Arg Glu Lys Met Asn Lys Pro Glu Leu Phe
340 345 350

Asn Gly Gly Glu Lys Lys Arg Lys Arg Thr Ser Ile Ala Ala Pro Glu
355 360 365

Lys Arg Ser Leu Glu Ala Tyr Phe Ala Val Gln Pro Arg Pro Ser Ser
370 375 380

Glu Lys Ile Ala Ala Ile Ala Glu Lys Leu Asp Leu Lys Lys Asn Val
385 390 395 400

Val Arg Val Trp Phe Cys Asn Gln Arg Gln Lys Gln Lys Arg Met Lys
405 410 415

Phe Ser Ala Thr Tyr
420

<210> 32
<211> 123
<212> DNA
<213> Homo sapiens

<400> 32
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ccg 123

<210> 33

<211> 1149

<212> DNA

<213> Homo sapiens

<400> 33

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taccacacga tgaacacgcgt gccgtgcacg tccacttcca cgggcctct gcggcaccac	180
caccaccacc accaccacca ccaggcgctc gaacccggcg atctgcttga ccacatctcc	240
tcgcccgtcgc tcgcgtcat gcgcggcgcg ggccggcgcc gcggcgccgg cgccggcgcc	300
ggccggcgccg gcccacga cggcccgggg ggccgtggcg gcccggcgcc cggccggcgcc	360
ccggggcgccg gggccccggg gggaggcgcc ggtggcgcc cggggggcgcc cggccggcgcc	420
ccgggcggcg ggctcttggg cggctcccg cacccttacc cgcataatgca cagccttggc	480
cacctgtcgc accccgcggc ggccggccgc atgaacatgc cgtccgggct gcccaccccc	540
gggcgtggcggc gcaccacggc gcggcagcgg cagcggcgcc ggccggcgcc	600
ggcaggtgg cagcggcatc ggccggcgcc gccgtggcgg ggcagcggg cctggcgcc	660
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cggcgcacatca agctggcggt gacgcaggcc gacgtggct cggcgtggc caacctaag	780
atcccgcccg tggctcaact cagccagagc accatctgca gttcgagtc gtcacgctc	840
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aagcggactt ccacgcgcgc gcccggaaag cgctccctcg aggccctactt cggcgtgcag	1020
ccccggccct cgtccgagaa gatcgccgcc atcgccgaga aactggacct caaaaagaac	1080
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acttactga	1149

<210> 34

<211> 423

<212> PRT

<213> Homo sapiens

<400> 34

Met Met Ser Met Asn Ser Lys Gln Pro His Phe Ala Met His Pro Thr			
1	5	10	15

Leu Pro Glu His Lys Tyr Pro Ser Leu His Ser Ser Ser Glu Ala Ile
20 25 30

Arg Arg Ala Cys Leu Pro Thr Pro Pro Leu Gln Ser Asn Leu Phe Ala
35 40 45

Ser Leu Asp Glu Thr Leu Leu Ala Arg Ala Glu Ala Leu Ala Ala Val
50 55 60

Asp Ile Ala Val Ser Gln Gly Lys Ser His Pro Phe Lys Pro Asp Ala
65 70 75 80

Thr Tyr His Thr Met Asn Ser Val Pro Cys Thr Ser Thr Ser Thr Val
85 90 95

Pro Leu Arg His His His His His His His Gln Ala Leu Glu
100 105 110

Pro Gly Asp Leu Leu Asp His Ile Ser Ser Pro Ser Leu Ala Leu Met
115 120 125

Ala Gly Ala Gly Gly Ala Gly Gly Ala Gly Ala Ala Ala Gly Gly Gly
130 135 140

Gly Ala His Asp Gly Pro Gly Gly Gly Gly Pro Gly Gly Gly Gly
145 150 155 160

Gly Pro Gly Gly Gly Pro Gly Gly Gly Gly Gly Gly Pro Gly
165 170 175

Gly Gly Gly Gly Pro Gly Gly Gly Leu Leu Gly Gly Ser Ala His
180 185 190

Pro His Pro His Met His Ser Leu Gly His Leu Ser His Pro Ala Ala
195 200 205

Ala Ala Ala Met Asn Met Pro Ser Gly Leu Pro His Pro Gly Leu Val
210 215 220

Ala Ala Ala Ala His His Gly Ala Ala Ala Ala Ala Ala Ala Ala
225 230 235 240

Ala Gly Gln Val Ala Ala Ala Ser Ala Ala Ala Ala Val Val Gly Ala
245 250 255

Ala Gly Leu Ala Ser Ile Cys Asp Ser Asp Thr Asp Pro Arg Glu Leu
260 265 270

Glu Ala Phe Ala Glu Arg Phe Lys Gln Arg Arg Ile Lys Leu Gly Val
275 280 285

Thr Gln Ala Asp Val Gly Ser Ala Leu Ala Asn Leu Lys Ile Pro Gly
290 295 300

Val Gly Ser Leu Ser Gln Ser Thr Ile Cys Arg Phe Glu Ser Leu Thr
305 310 315 320

Leu Ser His Asn Asn Met Ile Ala Leu Lys Pro Ile Leu Gln Ala Trp
325 330 335

Leu Glu Glu Ala Glu Gly Ala Gln Arg Glu Lys Met Asn Lys Pro Glu
340 345 350

Leu Phe Asn Gly Gly Glu Lys Lys Arg Lys Arg Thr Ser Ile Ala Ala
355 360 365

Pro Glu Lys Arg Ser Leu Glu Ala Tyr Phe Ala Val Gln Pro Arg Pro
370 375 380

Ser Ser Glu Lys Ile Ala Ala Ile Ala Glu Lys Leu Asp Leu Lys Lys
385 390 395 400

Asn Val Val Arg Val Trp Phe Cys Asn Gln Arg Gln Lys Gln Lys Arg
405 410 415

Met Lys Phe Ser Ala Thr Tyr
420

<210> 35
<211> 1091
<212> DNA
<213> Mus musculus

<400> 35
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taatgtgtgc	cttctactta	caattgcaga	gcaatatatt	cgccgggctg	gatgagagtc	180
tgctggcccg	tgccgaggct	ctggccgccg	tggacatcgt	ctcccagagt	aagagccacc	240
accaccatcc	gccccaccac	agcccctca	agccggacgc	cacttaccac	accatgaaca	300
ccatcccg	cacgtcggca	gcctcctt	cttctgtgcc	catctcgac	ccgtccgctc	360
tggctggcac	ccatcaccac	caccaccacc	accatcacca	ccatcaccag	ccgcaccagg	420
cgctggaggg	cgagctgctt	gagcacctaa	gccccggct	ggccctggga	gctatggcgg	480
gccccgacgg	cacggtgtg	tccactccgg	ctcacgcacc	acacatggcc	accatgaacc	540
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gcaagcgcac	gtccatcg	gcccggaga	agcgctct	ggaagcctac	ttcgccatcc	960
agccaaggcc	ctcctcg	aagatcg	ccatcg	aaagctggat	ctcaagaaaa	1020
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ccggcattta	g					1091

<210> 36
 <211> 322
 <212> PRT
 <213> Mus musculus

<400> 36

Met Cys Ala Phe Tyr Leu Gln Leu Gln Ser Asn Ile Phe Gly Gly Leu
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Asp Glu Ser Leu Leu Ala Arg Ala Glu Ala Leu Ala Ala Val Asp Ile
 20 25 30

Val Ser Gln Ser Lys Ser His His His His Pro Pro His His Ser Pro
 35 40 45

Phe Lys Pro Asp Ala Thr Tyr His Thr Met Asn Thr Ile Pro Cys Thr

50

55

60

Ser Ala Ala Ser Ser Ser Val Pro Ile Ser His Pro Ser Ala Leu
65 70 75 80

Ala Gly Thr His Gln
85 90 95

Pro His Gln Ala Leu Glu Gly Glu Leu Leu Glu His Leu Ser Pro Gly
100 105 110

Leu Ala Leu Gly Ala Met Ala Gly Pro Asp Gly Thr Val Val Ser Thr
115 120 125

Pro Ala His Ala Pro His Met Ala Thr Met Asn Pro Met His Gln Ala
130 135 140

Ala Leu Ser Met Ala His Ala His Gly Leu Pro Ser His Met Gly Cys
145 150 155 160

Met Ser Asp Val Asp Ala Asp Pro Arg Asp Leu Glu Ala Phe Ala Glu
165 170 175

Arg Phe Lys Gln Arg Arg Ile Lys Leu Gly Val Thr Gln Ala Asp Val
180 185 190

Gly Ser Ala Leu Ala Asn Leu Lys Ile Pro Gly Val Gly Ser Leu Ser
195 200 205

Gln Ser Thr Ile Cys Arg Phe Glu Ser Leu Thr Leu Ser His Asn Asn
210 215 220

Met Ile Ala Leu Lys Pro Ile Leu Gln Ala Trp Leu Glu Glu Ala Glu
225 230 235 240

Lys Ser His Arg Glu Lys Leu Thr Lys Pro Glu Leu Phe Asn Gly Ala
245 250 255

Glu Lys Lys Arg Lys Arg Thr Ser Ile Ala Ala Pro Glu Lys Arg Ser
260 265 270

Leu Glu Ala Tyr Phe Ala Ile Gln Pro Arg Pro Ser Ser Glu Lys Ile
275 280 285

Ala Ala Ile Ala Glu Lys Leu Asp Leu Lys Lys Asn Val Val Val Arg Val
290 295 300

Trp Phe Cys Asn Gln Arg Gln Lys Lys Lys Val Lys Tyr Ser Ala
305 310 315 320

Gly Ile

<210> 37
<211> 3110
<212> DNA
<213> Homo sapiens

<400> 37
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tccagccccg gctggcccg cacttctcg 180
ctctacggac cagcggcccg gcgggcggga agatgatgat gatgtccctg aacagcaagc 240
aggcgtagttag catgcccac ggcggcagcc tgcacgtgga gcccaagtac tcggcactgc 300
acagcacctc gccgggctcc tcggctccca tcgcccctc ggccagctcc cccagcagct 360
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gaagcagcag ctccagcagc agtggcagca gcggcggcgg gggctcgag qctatgcgg 480
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cgtcacgtc ggccgcctct tttcatcg tgcccatctc gcacccttgc gcgttggcgg 720
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attttggtg ttgttcgatt gtcttcatt gaagagataa ttttaatgtt ttattggcaa	3060
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<210> 38
 <211> 410
 <212> PRT
 <213> Homo sapiens

 <400> 38

Met Met Met Met Ser Leu Asn Ser Lys Gln Ala Phe Ser Met Pro His			
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Gly Gly Ser Leu His Val Glu Pro Lys Tyr Ser Ala Leu His Ser Thr		
20	25	30

Ser Pro Gly Ser Ser Ala Pro Ile Ala Pro Ser Ala Ser Ser Pro Ser		
35	40	45

Ser Ser Ser Asn Ala Gly		
50	55	60

Gly Gly Gly Gly Gly Arg Ser Ser Ser Ser Ser Ser Gly Ser Ser			
65	70	75	80

Gly Gly Gly Ser Glu Ala Met Arg Arg Ala Cys Leu Pro Thr Pro		
85	90	95

Pro Ser Asn Ile Phe Gly Gly Leu Asp Glu Ser Leu Leu Ala Arg Ala		
100	105	110

Glu Ala Leu Ala Ala Val Asp Ile Val Ser Gln Ser Lys Ser His His		
115	120	125

His His Pro Pro His His Ser Pro Phe Lys Pro Asp Ala Thr Tyr His		
130	135	140

Thr Met Asn Thr Ile Pro Cys Thr Ser Ala Ala Ser Ser Ser Val			
145	150	155	160

Pro Ile Ser His Pro Cys Ala Leu Ala Gly Thr His His His His His
165 170 175

His His His His His His Gln Pro His Gln Ala Leu Glu Gly Glu
180 185 190

Leu Leu Glu His Leu Ser Pro Gly Leu Ala Leu Gly Ala Met Ala Gly
195 200 205

Pro Asp Gly Ala Val Val Ser Thr Pro Ala His Ala Pro His Met Ala
210 215 220

Thr Met Asn Pro Met His Gln Ala Ala Leu Ser Met Ala His Ala His
225 230 235 240

Gly Leu Pro Ser His Met Gly Cys Met Ser Asp Val Asp Ala Asp Pro
245 250 255

Arg Asp Leu Glu Ala Phe Ala Glu Arg Phe Lys Gln Arg Arg Ile Lys
260 265 270

Leu Gly Val Thr Gln Ala Asp Val Gly Ser Ala Leu Ala Asn Leu Lys
275 280 285

Ile Pro Gly Val Gly Ser Leu Ser Gln Ser Thr Ile Cys Arg Phe Glu
290 295 300

Ser Leu Thr Leu Ser His Asn Asn Met Ile Ala Leu Lys Pro Ile Leu
305 310 315 320

Gln Ala Trp Leu Glu Glu Ala Glu Lys Ser His Arg Glu Lys Leu Thr
325 330 335

Lys Pro Glu Leu Phe Asn Gly Ala Glu Lys Lys Arg Lys Arg Thr Ser
340 345 350

Ile Ala Ala Pro Glu Lys Arg Ser Leu Glu Ala Tyr Phe Ala Ile Gln
355 360 365

Pro Arg Pro Ser Ser Glu Lys Ile Ala Ala Ile Ala Glu Lys Leu Asp
370 375 380

Leu Lys Lys Asn Val Val Arg Val Trp Phe Cys Asn Gln Arg Gln Lys
385 390 395 400

Gln Lys Arg Met Lys Tyr Ser Ala Gly Ile
405 410

<210> 39
<211> 1594
<212> DNA
<213> Mus musculus

<400> 39
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tagcaagacg agcttgattc catgtccccc gctgcctccc tgccagactc ccgaagatga
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gtattccccca ctgaccgtgc tgtgcgcctt ctcgccttgc gctgcagggt aatataatttg 360
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cccacggcaa gaaccatccg ttcaagcccc acgcccaccta ccataccatg agcagcgtgc 420
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cgcatcacgc ggtacatcag ggcctcgagg gcgacttact tgagcacatc tcgcccacgc 480
tgagcgttag gggcttaggg gccccggagc actcggtat gcccggcag atccacccgc 540
atcatctagg cgccatgggc cacttgcacatc aggccatggg catgagtcac ccgcacatggc
tagcaccgca cagtgcacatc cccgcgtgtc tcagcgatgt ggagtcagac cctcgagagc 600
tggaagcggtt cgccgagcgc ttcaagcaga ggcgcacatc gttgggggtc acccaggcgg 660
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ccatctgcag gttcgagtct cttactctgt cgcacacacaa catgatcgct ctcaagccgg 720
tcctccaggc ctggctggag gaggccgagg ccgcctaccg agagaagaac agcaagccag
agctcttcaa cggcagttag ggtaaagcgc aacgcacatc catgcggcgc ccagagaagc 780
1020
1080
1140
1200
1260
1320

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tcgcggagaa	actggacctt	aaaaagaatg	tggtgagggt	ctggttctgt	aaccagagac	1440
agaaaacagaa	acgaatgaaa	tactctgctg	tggactgatt	gcggcgggtg	ctgcgtccgg	1500
aggagcctgg	agagccta	gatcgcccc	cttccgatgg	gaggggagct	tacgggacac	1560
tccagggtgt	ttcctggcag	gtcaggttct	ttcc			1594

<210> 40
 <211> 338
 <212> PRT
 <213> Mus musculus

 <400> 40

Met	Met	Ala	Met	Asn	Ala	Lys	His	Arg	Phe	Gly	Met	His	Pro	Val	Leu
1															15

Gln	Glu	Pro	Lys	Phe	Ser	Ser	Leu	His	Ser	Gly	Ser	Glu	Ala	Met	Arg
															30
															20
															25

Arg	Val	Cys	Leu	Pro	Ala	Pro	Gln	Leu	Gln	Gly	Asn	Ile	Phe	Gly	Ser
															45
															35
															40

Phe	Asp	Glu	Ser	Leu	Leu	Ala	Arg	Ala	Glu	Ala	Leu	Ala	Ala	Val	Asp
															50
															55
															60

Ile	Val	Ser	His	Gly	Lys	Asn	His	Pro	Phe	Lys	Pro	Asp	Ala	Thr	Tyr
															65
															70
															75
															80

His	Thr	Met	Ser	Ser	Val	Pro	Cys	Thr	Ser	Thr	Ser	Pro	Thr	Val	Pro
															85
															90
															95

Ile	Ser	His	Pro	Ala	Ala	Leu	Thr	Ser	His	Pro	His	His	Ala	Val	His
															100
															105
															110

Gln	Gly	Leu	Glu	Gly	Asp	Leu	Leu	Glu	His	Ile	Ser	Pro	Thr	Leu	Ser
															115
															120
															125

Val	Ser	Gly	Leu	Gly	Ala	Pro	Glu	His	Ser	Val	Met	Pro	Ala	Gln	Ile
															130
															135
															140

His	Pro	His	His	Leu	Gly	Ala	Met	Gly	His	Leu	His	Gln	Ala	Met	Gly
															145
															150
															155
															160

Met Ser His Pro His Ala Val Ala Pro His Ser Ala Met Pro Ala Cys
165 170 175

Leu Ser Asp Val Glu Ser Asp Pro Arg Glu Leu Glu Ala Phe Ala Glu
180 185 190

Arg Phe Lys Gln Arg Arg Ile Lys Leu Gly Val Thr Gln Ala Asp Val
195 200 205

Gly Ala Ala Leu Ala Asn Leu Lys Ile Pro Gly Val Gly Ser Leu Ser
210 215 220

Gln Ser Thr Ile Cys Arg Phe Glu Ser Leu Thr Leu Ser His Asn Asn
225 230 235 240

Met Ile Ala Leu Lys Pro Val Leu Gln Ala Trp Leu Glu Glu Ala Glu
245 250 255

Ala Ala Tyr Arg Glu Lys Asn Ser Lys Pro Glu Leu Phe Asn Gly Ser
260 265 270

Glu Arg Lys Arg Lys Arg Thr Ser Ile Ala Ala Pro Glu Lys Arg Ser
275 280 285

Leu Glu Ala Tyr Phe Ala Ile Gln Pro Arg Pro Ser Ser Glu Lys Ile
290 295 300

Ala Ala Ile Ala Glu Lys Leu Asp Leu Lys Lys Asn Val Val Arg Val
305 310 315 320

Trp Phe Cys Asn Gln Arg Gln Lys Gln Lys Arg Met Lys Tyr Ser Ala
325 330 335

Val Asp

<210> 41
<211> 120
<212> DNA
<213> Homo sapiens

<400> 41
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ttctccagtc tgcactctgg ctccgaggct atgcgccgag tctgtctccc agccccgcag 120

<210> 42

<211> 897

<212> DNA

<213> Homo sapiens

<400> 42

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gcggcggtgg atatcgctc ccacggcaag aaccatccgt tcaagcccga cgccacctac 120

cataccatga gcagcgtgcc ctgcacgtcc acttcgtcca ccgtgcccat ctcccaccca 180

gctgcgctca cctcacaccc tcaccacgcc gtgcaccagg gcctcgaagg cgacctgctg 240

gagcacatct cgcccacgct gagtgtgagc ggcctggcg ctccggaaca ctcggtgatg 300

cccgacacaga tccatccaca ccacctgggc gccatgggcc acctgcacca ggccatgggc 360

atgagtcacc cgcacaccgt ggcccctcat agcgccatgc ctgcatgcct cagcgacgtg 420

gagtcagacc cgcgcgagct ggaagccttc gcccagcgct tcaagcagcg ggcgcataag 480

ctgggggtga cccaggcgga cgtggcgcg gctctggcta atctcaagat ccccgccgtg 540

ggctcgctga gccaaagcac catctgcagg ttcgagtctc tcactctctc gcacaacaac 600

atgatcgctc tcaagccggt gctccaggcc tggttggagg aggccgagggc cgccctaccga 660

gagaagaaca gcaagccaga gctttcaac ggcagcgaac ggaagcgcaa acgcacgtcc 720

atcgccggcgc cggagaagcg ttcactcgag gcctatttcg ctatccagcc acgtccttca 780

tctgagaaga tcgcggccat cgctgagaaa ctggacctta aaaagaacgt ggtgagagtc 840

tggttctgca accagagaca gaaacagaaa cgaatgaagt attcggctgt ccactga 897

<210> 43

<211> 338

<212> PRT

<213> Homo sapiens

<400> 43

Met Met Ala Met Asn Ser Lys Gln Pro Phe Gly Met His Pro Val Leu
1 5 10 15

Gln Glu Pro Lys Phe Ser Ser Leu His Ser Gly Ser Glu Ala Met Arg
20 25 30

Arg Val Cys Leu Pro Ala Pro Gln Leu Gln Gly Asn Ile Phe Gly Ser

35

40

45

Phe Asp Glu Ser Leu Leu Ala Arg Ala Glu Ala Leu Ala Ala Val Asp
50 55 60

Ile Val Ser His Gly Lys Asn His Pro Phe Lys Pro Asp Ala Thr Tyr
65 70 75 80

His Thr Met Ser Ser Val Pro Cys Thr Ser Thr Ser Ser Thr Val Pro
85 90 95

Ile Ser His Pro Ala Ala Leu Thr Ser His Pro His His Ala Val His
100 105 110

Gln Gly Leu Glu Gly Asp Leu Leu Glu His Ile Ser Pro Thr Leu Ser
115 120 125

Val Ser Gly Leu Gly Ala Pro Glu His Ser Val Met Pro Ala Gln Ile
130 135 140

His Pro His His Leu Gly Ala Met Gly His Leu His Gln Ala Met Gly
145 150 155 160

Met Ser His Pro His Thr Val Ala Pro His Ser Ala Met Pro Ala Cys
165 170 175

Leu Ser Asp Val Glu Ser Asp Pro Arg Glu Leu Glu Ala Phe Ala Glu
180 185 190

Arg Phe Lys Gln Arg Arg Ile Lys Leu Gly Val Thr Gln Ala Asp Val
195 200 205

Gly Ala Ala Leu Ala Asn Leu Lys Ile Pro Gly Val Gly Ser Leu Ser
210 215 220

Gln Ser Thr Ile Cys Arg Phe Glu Ser Leu Thr Leu Ser His Asn Asn
225 230 235 240

Met Ile Ala Leu Lys Pro Val Leu Gln Ala Trp Leu Glu Glu Ala Glu
245 250 255

Ala Ala Tyr Arg Glu Lys Asn Ser Lys Pro Glu Leu Phe Asn Gly Ser
260 265 270

Glu Arg Lys Arg Lys Arg Thr Ser Ile Ala Ala Pro Glu Lys Arg Ser
275 280 285

Leu Glu Ala Tyr Phe Ala Ile Gln Pro Arg Pro Ser Ser Glu Lys Ile
290 295 300

Ala Ala Ile Ala Glu Lys Leu Asp Leu Lys Lys Asn Val Val Arg Val
305 310 315 320

Trp Phe Cys Asn Gln Arg Gln Lys Gln Lys Arg Met Lys Tyr Ser Ala
325 330 335

Val His

<210> 44
<211> 18
<212> DNA
<213> Homo sapiens

<400> 44
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<210> 45
<211> 18
<212> DNA
<213> Homo sapiens

<400> 45
cactcctcat taacgcgc 18

<210> 46
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<212> DNA
<213> Homo sapiens

<400> 46
cacagctcat taagtcgc 18

<210> 47
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<212> DNA
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<400> 47
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<210> 48
<211> 11
<212> DNA
<213> *Homo sapiens*

<220>
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<223> wherein n is a, c, g, or t

<400> 48
gcatnnntaa t

11

<210> 49
<211> 11
<212> DNA
<213> *Rattus norvegicus*

<400> 49
gcataaataaa t

11